

AMENDMENTS OF THE CLAIMS

A detailed listing of all claims in the application is presented below. This listing of claims will replace all prior versions, and listings, of claims in the application. All claims being currently amended are submitted with markings to indicate the changes that have been made relative to immediate prior version of the claims. The changes in any amended claim are being shown by strikethrough (for deleted matter) or underlined (for added matter).

1. (Original) A system supporting a sash that is laterally removable from between opposed window jambs, the system comprising:
 - a. a pair of sash support arms mounted to hang freely downward on respective opposite stiles of the sash and to pivot from downwardly hanging positions to outwardly extended positions that the support arms assume when supporting the sash;
 - b. the sash support arms in the downwardly hanging positions being disposed so that as the sash is lowered toward a supported position, the downwardly hanging arms engage sash supporting platforms of counterbalanced sash shoes locked into the jambs so that sash-lowering engagement between the arms and the platforms pivots the arms outward along the platforms; and
 - c. outer end regions of the sash support arms in the outwardly extended positions resting on regions of the platforms spaced from the sash and arranged vertically under counterbalance elements connected to the shoes to support the weight of the sash.
2. (Original) The system of claim 1 wherein the sash supporting platforms of the shoes extend toward the sash stiles so that inner regions of the platforms engage the sash support arms in the downwardly hanging positions and so that outer regions of the platforms engage the outer end regions of the sash support arms in the outwardly extended positions.

3. (Original) The system of claim 2 wherein the counterbalance elements are connected to the shoes in regions vertically above the outer platform regions.
4. (Original) The system of claim 1 wherein the shoes include locking elements deployable to lock the shoes to jamb projections during removal and replacement of the sash.
5. (Original) The system of claim 4 wherein the locking elements are pivotally mounted on the shoes and latched in undeployed positions out of engagement with window jambs.
6. (Original) The system of claim 4 wherein the locking elements are formed as extruded metal hooks.
7. (Previously presented) The system of claim 1 wherein the shoes and the sash support arms are each formed of metal extrusions.
8. (Original) The system of claim 7 wherein the shoes are available in different widths formed as different predetermined lengths of the shoe extrusion so that different widths of shoes fit different widths of jamb channels.
9. (Original) The system of claim 8 wherein shoes of different widths are adapted to connect to different numbers of counterbalance elements.
10. (Original) The system of claim 7 wherein the extrusions for the sash support arms are available in different lengths to fit different jamb dimensions.
11. (Original) The system of claim 10 wherein the different length sash support arms have extruded code lines indicating size.
12. (Currently amended) In a system counterbalancing a window sash supported by a pair of counterbalanced sash shoes so that the sash extends between a pair of jambs from which the sash is removable by maneuvering the sash upward and laterally while the shoes are locked in the jambs, the improvement comprising:

- a. the shoes being formed of a metal extrusion having a predetermined profile extending for a width of each of the shoes and establishing a configuration of each of the shoes; and
 - b. the configuration extending integrally in a single piece of the predetermined extrusion profile from ~~between~~ a hook-shaped upper region formed to interconnect with a counterbalance element to and an L-shaped lower region forming a platform extending toward the sash from vertically below the upper region.
13. (Currently amended) The improvement of claim 12 wherein the sash is supported on the shoes by sash support arms formed of a metal extrusion ~~having an evenly extending profile.~~
14. (Currently amended) The improvement of claim 13 wherein the sash support arms are movably mounted on the sash so that when the sash support arms are to rest on the shoes in outwardly extending positions of the sash support arms rest on the shoes in rest positions located vertically below the upper region interconnected with the counterbalance elements to minimize any moment arms tending to turn the shoes around horizontal axes.
15. (Original) The improvement of claim 13 wherein the sash support arms are mounted on the sash to pivot between outwardly extending positions supporting the sash and downwardly hanging positions that the support arms assume when not supporting the sash.
16. (Original) The improvement of claim 12 wherein the shoes include locking elements that engage jamb projections to lock the shoes during sash removal and replacement.
17. (Original) The improvement of claim 16 wherein the locking elements are formed of a metal extrusion and are pivotally mounted on the shoes.
18. (Currently amended) The improvement of claim 16 wherein the locking elements are formed as hooks that catch on the jamb projections, and the shoes have latches that latch the locking elements in undeployed positions out of engagement with the jambs projections.

19. (Currently amended) The improvement of claim 12 wherein the ~~elevation~~ configuration of a mid-region of the shoe is formed to support a guide that slides in each respective one of the a jambs to guide vertical movement of each respective one of the shoes.
20. (Currently amended) The improvement of claim 19 wherein the ~~profile configures~~ mid-region configuration includes a guide retaining groove that receives the guide.
21. (Currently amended) The improvement of claim 20 wherein the shoe profile configuration includes a latch retaining groove for receiving a hook latch and a pin groove for receiving a pivot pin of the ~~shoe~~ hook latch.
22. (Currently amended) The improvement of claim 12 wherein the shoes are formed of predeterminedly variable lengths of the extrusion to form shoes of different widths fitting different sizes of the jamb channels.
23. (Currently amended) The improvement of claim 22 wherein the shoes of different widths have respective upper regions adapted to interconnect to different numbers of counterbalance elements.
24. (Currently amended) The improvement of claim 13 wherein different metal extrusions having different ~~evenly extending~~ profile lengths form the sash support arms available in different lengths to accommodate different distances between the sash and the opposite shoes.
25. (Currently amended) The improvement of claim 24 wherein the different lengths of the sash support arms have extruded code lines indicating size each different length.
26. (Withdrawn)
27. (Withdrawn)
28. (Withdrawn)
29. (Withdrawn)
30. (Withdrawn)

31. (Withdrawn)

32. (Withdrawn)

33. (Withdrawn)

34. (Withdrawn)

35. (Withdrawn).

36. (Withdrawn)

37. (Withdrawn)

38. (Withdrawn)

39. (Currently amended) A sash support system comprising:

- a. a plurality of sash support elements each formed of a metal extrusion having a profile establishing a respective configuration of each element;
- b. the configuration of a first one of the extruded elements forming a shoe extending integrally in a single extruded piece from a hook-shaped upper region engaging a counterbalance and to a platform-shaped lower region supporting a sash; and
- c. the configuration of a second one of the extruded elements forming a sash support arm pivotally connected to a stile of the sash to engage the platform-shaped lower region of the shoe when the sash support arm is outwardly extended and to drop to a downwardly dependent position when the sash support arm does not engage the platform shaped lower region.

40. (Currently amended) The system of claim 39 wherein the configuration of a third one of the extruded elements forms a shoe lock connected to the ~~lower region of the shoe~~ below the platform to be movable between deployed and undeployed positions.

41. (Currently amended) The system of claim 40 wherein the shoe profile ~~configures~~ includes a pin groove for receiving a pivot pin supporting the shoe lock.

42. (Original) The system of claim 40 including a resilient latch mounted on the shoe for retaining the shoe lock in the undeployed position.
43. (Original) The system of claim 42 wherein the shoe lock and the latch are configured so that the shoe lock is manually latchable and unlatchable.
44. (Original) The system of claim 40 wherein the shoe lock is pivotally movable between the deployed and undeployed positions and is downwardly dependent from the shoe in the deployed position.
45. (Original) The system of claim 39 including a resin guide mounted on the shoe.
46. (Previously presented) The system of claim 45 wherein the configuration of a mid-region of the shoe is formed with a locking slot for receiving the resin guide.
47. (Currently amended) The system of claim 39 wherein the sash support arm is pivotally mounted on the sash stile to move ~~between an~~ to the outwardly extending position supporting the sash upon engagement with the platform shaped lower region and ~~a to~~ move to the downwardly hanging position ~~that the support arm assumes when not supporting the sash upon disengagement with the platform shaped lower region.~~
48. (Original) The system of claim 47 wherein the sash support arm braces against a mounting bracket limiting movement of the sash support arm beyond the outwardly extending and downwardly hanging positions.
49. (Original) The system of claim 39 wherein the shoe is available in different widths established by different predetermined lengths of the first extruded element to accommodate different widths of jamb shoe channels.
50. (Currently amended) The system of claim 49 wherein upper regions of different shoe widths ~~are adapted for connecting~~ connect respectively to different numbers of counterbalance elements.

51. (Currently amended) The system of claim 39 wherein the sash support arm is available from a plurality of extrusions having different ~~evenly extending~~ profiles establishing different lengths for the support arm.

52. (Currently amended) The system of claim 51 wherein the plurality of extrusions for the sash support arm are formed with ~~evenly extending~~ code lines indicating different arm lengths.

53. (Currently amended) A sash support comprising:

- a. sash support arms movably mounted respectively on each stile of a sash so that the support arms hang downward in dependent positions when not supporting the sash and move outward to braced positions in response to engagement of the support arms with locked sash shoes as the sash is lowered between the shoes so that the weight of the lowered sash urges the sash support arms outward on the shoes to the braced positions; and
- b. the support arms in the braced positions having end regions resting on respective sash shoes in sash support regions of the shoes vertically under ~~upper shoe~~ counterbalance regions of the shoes where counterbalance elements are ~~connected~~ connect to the sash shoes to minimize any moment arms tending to turn the shoes around horizontal axes.

54. (Original) The support of claim 53 wherein mounting brackets pivotally mount the support arms on the sash stiles and limit movement of the support arms beyond the downwardly hanging and braced positions.

55. (Currently amended) The support of claim 60 wherein the ~~profile of the~~ extrusion for the shoes forms the ~~upper regions connected to~~ counterbalance regions ~~elements~~ vertically above the sash support regions engaging end regions of the ~~braced~~ support arms in the braced positions.

56. (Original) The support of claim 55 wherein the support regions of the shoes extend toward the sash stiles to engage the support arms in their downwardly hanging positions when the sash is lowered into engagement with the shoes.

57. (Original) The support of claim 56 wherein the support arms move from their downwardly hanging positions to their outward braced positions by sliding along the support regions of the shoes as the sash is lowered.
58. (Previously presented) The support of claim 53 wherein the sash support arms are formed of a metal extrusion.
59. (Previously presented) The support of claim 58 wherein a plurality of extrusions for the support arms have different profiles establishing different arm lengths and are provided with extruded coding lines indicating support arm length.
60. (Previously presented) The support of claim 53 wherein the shoes are formed of a metal extrusion
61. (Currently amended) A system locking counterbalance shoes to window jambs while a sash supported on the shoes is removed from between the window jambs, the system comprising:
- a. the shoes having hooks that are pivotally mounted on ~~lower regions~~ of the shoes below sash supporting platforms of the shoes so that the hooks can move between latched and unlatched positions while a sash is supported on the platforms;
 - b. the hooks in unlatched positions hanging dependently downward from the shoes below the sash supporting platforms where the hooks are disposed to engage the jambs and hook under lances formed in the jambs as the shoes rise; and
 - c. the hooks in latched positions being retained out of engagement with the jambs and clear of the lances.
62. (Original) The system of claim 61 wherein resilient latches are carried on the shoes for holding the hooks in the latched positions.

63. (Original) The system of claim 62 wherein the hooks are manually movable into the latched positions and are released from the latched positions by pressing between ends of the hook and the latch.
64. (Previously presented) The system of claim 61 wherein the hooks and the shoes are each formed of metal extrusions.
65. (Original) The system of claim 64 wherein the shoes have extrusion-formed grooves that receive pivot pins supporting the hooks.
66. (Original) The system of claim 65 wherein the shoes have extrusion-formed slots that retain resilient latches for holding the hooks in the latched positions.
67. (Currently amended) A system supporting a sash that is laterally removable from between opposed window jambs and is supported on counterbalanced shoes that run vertically within the jambs and are separated sufficiently to allow lateral movement of the sash, the system comprising:
- a. the shoes having platforms that extend toward the sash to support the sash;
 - b. the sash having a pair of support arms, ~~one of the support arms being~~ arm secured to each of two stiles of the sash stile so that the sash support arms rest in downwardly hanging ~~hang downward in~~ positions in which lower ends of the support arms engage sash end regions of the shoe platforms when the sash and the support arms are moved downward from above the shoe platforms;
 - c. the sash support arms being mounted on the sash to pivot between the downwardly hanging positions and outwardly extending positions in which the sash support arms engage jamb end regions of the shoe platforms as weight of the downwardly moved sash transfers to the shoes via the support arms; and
 - d. counterbalance elements exerting a lifting force on the shoes in regions vertically above the jamb end regions of the shoe platforms engaged by the sash support arms in the outwardly extending positions.

68. (Original) The system of claim 67 wherein the shoe platforms are configured with steps that the ends of the support arms slide downward over as the support arms move from the sash end regions to the jamb end regions of the shoe platforms.
69. (Original) The system of claim 67 wherein the sash support arms are braced against movement beyond the downward hanging positions and the outwardly extending positions.
70. (Previously presented) The system of claim 67 wherein the sash support arms are formed of a metal extrusion.
71. (Original) The system of claim 70 wherein the extrusions are available in different profiles forming support arms of different lengths to accommodate the sash to different window dimensions.
72. (Previously presented) The system of claim 71 wherein the extrusions of different profiles are formed with coding lines to indicate the different lengths of the sash support arms.
73. (Previously presented) The system of claim 67 wherein the shoes are formed of a metal extrusion.
74. (Currently amended) A system counterbalancing a laterally removable sash supported by counterbalanced sash shoes respectively running vertically in opposed jambs arranged along opposite stiles of the sash, the system comprising:
- a. support arms pivotally mounted on the sash to extend between the sash and sash shoes that are biased upward at lifting regions spaced from each sash stile, the support arms being arranged for transferring the weight of the sash to the shoes at support regions of the shoes that are arranged vertically below the lifting regions to minimize any moment arms tending to turn the shoes around horizontal axes; and
 - b. the support arms moving to downwardly hanging positions ~~upon~~ in response to movement of the sash upward ~~and laterally from the shoes~~ to lift the support arms above the shoe support regions.

75. (Original) The system of claim 74 wherein the support arms are braced in support positions transferring the weight of the sash to the support regions of the shoes, and the support arms otherwise hang downward when not transferring sash weight to the shoes.
76. (Previously presented) The system of claim 74 wherein the shoes are formed of a metal extrusion.
77. (Previously presented) The system of claim 74 wherein the sash support arms are formed of a metal extrusion.
78. (Original) The system of claim 77 wherein the extrusions are available in different profiles forming support arms of different lengths to accommodate the sash to different window dimensions.
79. (Original) The system of claim 74 wherein the shoes have platforms extending from the support regions toward the sash to engage support arms hanging downward from a sash being lowered onto the shoes.
80. (Currently amended) A system supporting a sash that runs vertically within an opposed pair of window jambs containing counterbalance sash shoes, the sash being movable laterally of the jambs for withdrawing the sash from between the jambs, and the system comprising:
- a. a pair of movable support arms pivotally mounted on respective stiles of the sash stiles and extending to the counterbalance shoes to transfer the weight of the sash to support regions of the counterbalance shoes;
 - b. the counterbalance shoes being biased upward at lifting regions arranged vertically above the support regions so that a vertical relationship between the lifting regions and the support regions to minimize minimizes any moment arms tending to turn the shoes around horizontal axes; and

- c. the support arms being ~~moved~~ mounted to hang downwardly in response to lifting the sash upwardly relative to the shoes ~~in a region between the lifting regions when the sash is lifted~~ to remove its sash weight from the support regions.

81. (Original) The system of claim 80 wherein the support arms move in response to being subjected and not subjected to sash weight.
82. (Previously presented) The system of claim 80 wherein the shoes are formed of a metal extrusion.
83. (Previously presented) The system of claim 80 wherein the sash support arms are formed of a metal extrusion.
84. (Currently amended) The system of claim 83 wherein a plurality of the support arm extrusions are available in different lengths to form support arms that can bridge different distances between stiles of the sash and the support regions of the sash shoes.
85. (Original) The system of claim 80 wherein the support arms move inwardly toward the sash when the sash is lifted from the shoes.
86. (Currently amended) A system supporting a sash that is laterally removable from between opposed window jambs, the system including counterbalance shoes arranged within the jambs to be spaced laterally from stile edges of the sash to allow lateral movement of the sash for removing the sash from between the jambs, and the system comprising:
- a. sash support arms bridging distances between the shoes and stiles of the sash, the support arms being movable between sash supporting positions in which the support arms transfer weight of the sash to the shoes and sash uplifted positions in which the support arms hang downward from the sash stiles and allow lateral movement of the sash between the shoes;
 - b. counterbalance lifting regions ~~for~~ of the shoes being arranged vertically above support regions of the shoes that uphold the weight of the sash transferred via the support arms to the shoes ~~so that the sash weight does not subject the sash shoes~~

to minimize any moment arms tending to turn the sash shoes ~~about~~ around horizontal axes; and

- c. the sash support arms in the support positions being braced against moving in response to sash weight.
87. (Previously presented) The system of claim 86 wherein the shoes are formed of a metal extrusion.
88. (Previously presented) The system of claim 86 wherein the sash support arms are formed of a metal extrusion.
89. (Original) The system of claim 88 wherein a plurality of extrusions are made in different lengths to bridge different distances between stiles of the sash and the support regions.
90. (Original) The system of claim 86 wherein the shoes have platforms extending upward and toward the sash from sash weight support regions engaged by the support arms.